current was 21 amps (range 13-35). No acute ECG or skin changes were observed.
Conclusions: This study confirms the safety and high first shock efficacy of the waveform in ventricular fibrillation. This new AED waveform delivers limited peak current in low impedance patients and sufficient average current in high impedance patients for successful defibrillation.

1154-90 Suboptimal Treatment of Patients With Non-ST Elevation Acute Coronary Syndromes Presenting With Positive Baseline Troponin Values

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Background: We evaluated how the timing of troponin (Tn) elevation in patients with non–ST-elevation acute coronary syndromes (NSTE ACS) influences adherence to the ACC/AHA Practice Guidelines and clinical outcomes.
Methods: In the CRUSADE Initiative, we compared treatment and outcomes in high-risk NSTE ACS patients with baseline positive troponin (Tn+) (n = 12,342) to patients who were Tn+ only on later samples (n = 7,086). Tn+ was defined as greater than the cut-off value at each institution.
Results: Median time to the first Tn+ sample was 0.7 hours (0.3, 1.7 hours) in patients with baseline Tn+ levels vs. 13.0 hours (8.4, 19.8) for patients with later Tn+ levels. Acute medication use (<24 hrs) was similar between groups, but patients with baseline Tn+ levels were less likely to undergo cardiac catheterization and percutaneous coronary intervention (PCI) than patients with later Tn+ levels (Table). Unadjusted and risk-adjusted mortality rates were higher in patients with baseline Tn+ levels.
Conclusions: The use of Guidelines-recommended therapies was sub-optimal in all NSTE MI patients with Tn+ levels. Paradoxically, patients identified as high-risk by baseline Tn+ levels received no better acute care and were less likely to undergo cardiac catheterization and PCI than patients with late Tn+ . Appropriate responses to elevated troponins with guidelines-based interventions are needed to overcome such disparities.
Acute Medications (< 24 hours), Procedures, and Outcomes

	Baseline Positive Troponin (n = 12,342)	**Baseline Negative/ Later Positive Troponin** (n = 7,086)	**P-value**
Aspirin (%)	91.1	91.0	0.76
Heparin (%)	85.2	84.8	0.44
B-blocker (%)	77.8	78.3	0.40
GP IIb-IIIa inhibitor (%)	34.0	34.0	0.98
Cardiac catheterization (%)	65.8	70.2	< 0.001
PCI (%)	36.4	39.7	< 0.001
In-hospital mortality (%)	6.5	4.1	< 0.001

1154-91 Cariporide but Not Epinephrine Prevents Ischemic Contracture During Closed-Chest Resuscitation

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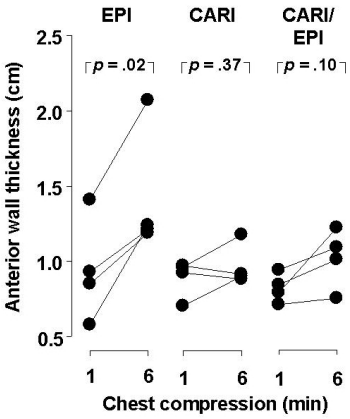
Background: We have reported that cariporide (a selective inhibitor of the sodium-hydrogen exchanger isoform-1) given during resuscitation from VF ameliorates ischemic contracture and improves the hemodynamic efficacy of chest compression (CC). We currently investigated whether epinephrine (because of improved myocardial perfusion) could have similar effects, and compared the effects epinephrine, cariporide, and their combination using a pig model of VF and closed-chest resuscitation.
Methods: VF was electrically induced in 12 domestic pigs and left untreated for 8 minutes. Pigs were randomized to receive at 2 minutes of CC a 3 mg/kg bolus of cariporide (*CARI*, n = 4), a 0.02 mg/kg bolus of epinephrine with additional doses if the coronary perfusion pressure decreased below < 15 mm Hg (*EPI*, n = 4), or their combination (*CARI/EPI*, n = 4). Anterior left ventricular wall thickness was measured using transesophageal echocardiography.
Results: During VF, wall thickness remained largely unchanged. However, during CC a prominent increase in wall thickness occurred in the *EPI* but not in the *CARI* group (Figure) despite a higher coronary perfusion pressure (36 ± 12 vs 19 ± 6 mm Hg). In the *CARI/EPI* group, there were only minimal increases in wall thickness (*NS*) but a comparable coronary perfusion pressure (36 ± 14 mm Hg).
Conclusion: A combination of cariporide and epinephrine could be beneficial during cardiac resuscitation by ameliorating ischemic contracture and securing a viable coronary perfusion pressure.



1154-92 Compliance and Effectiveness of the Wearable Cardioverter Defibrillator Vest

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The wearable cardioverter-defibrillator (WCD) is an external device capable of automatic ventricular tachycardia (VT)/fibrillation (VF) detection and defibrillation. Its effectiveness in the prevention of arrhythmic sudden death is dependent on patient compliance and appropriate detection and treatment of VT/VF. We sought to determine whether compliance and effectiveness of anti-arrhythmic treatment by the WCD.
Methods: Patients issued a WCD after market release were entered into a registry, which recorded baseline demographics and indications, compliance and events.
Results: From August 2002 through July 2003, 218 patients wore the WCD for >7 days (mean 50.1, range 8-268, total 10917 days). Demographic data were available for 175 patients. The population was predominantly male (72%) with a mean age of 56.6±15.4 yrs (range 83-18, n=151). Indications were available for 119 patients and included post-MI monitoring (14.2%), post-coronary bypass surgery monitoring (2.5%), bridge to transplant (6.7%), awaiting ICD (49.5%), myocarditis (6.7%), and heart failure (6.6%: ischemic 3.3%, nonischemic 3.3%). Median daily use was 21.5 hrs (90% of time available), mean 19.6±4.6 hrs (82±22%), range 5.2-23.8 hrs. There were no deaths outside the hospital while the device was not worn. Sustained VT/VF occurred 8 times in 7 patients (3.2%). First shock success occurred in 8/8. However, 3 patients expired due to subsequent arrhythmias. In one patient the spouse prevented a second shock. Two patients wearing the WCD as a bridge after acute MI died: 1 had VT converted by the WCD, recovered consciousness, but died in an emergency room with VT storm without the WCD; 1 died with the shock prevented due to an ECG electrodes disturbance, presumably on the ground or only partially on the skin. Two patients had shocks without an actual arrhythmia. Longer duration of monitoring correlated with higher compliance rates (p<0.001) but was lower in patients using the WCD as a bridge to transplant (mean 16.5 ± 5.0 hrs/day, 72%, p=0.039).
Conclusions: Compliance was satisfactory with the WCD being worn 90% of the time in over half of patients. The mortality was 1.4% over a mean usage time of 50 days. Survival occurred in 62.5% of events.

1154-93 Low Frequency Audible Doppler Reveals That a Substantial Fraction of Patients With Suspected Pulseless Electrical Activity Have Occult Blood Flow

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BACKGROUND: A major challenge in treating cardiac arrest patients with suspected pulseless electrical activity (PEA) is determining the presence of cardiac contractility. Evidence of occult blood flow (i.e., "pseudo"-electromechanical dissociation [EMD]) can be detected using a hand-held peripheral Doppler device, continuous end-tidal carbon dioxide monitoring, and transesophageal echocardiography. However, these techniques are infrequently used due to lack of accuracy, specificity and availability. We hypothesize that a mobile 2 MHz audible Doppler device could be used to quickly and accurately detect cardiac contractility in cardiac arrest patients with suspected PEA. METHODS: Hospitalized patients in cardiac arrest with the absence of a palpable pulse or blood flow by a hand-held vascular Doppler device, were evaluated for cardiac contractility using a 2 MHz Doppler head attached to a hand-held Doppler. A subcostal approach similar to that used in transthoracic echocardiography was employed. Patients were excluded if an electrocardiogram revealed an arrhythmia not normally associated with a detectable pulse. RESULTS: To verify accuracy of placement, the Doppler head was placed on volunteers by a technician not able to hear the auditory feedback. An independent observer confirmed the Doppler tones through a headphone in each of 100 trials. To assess the sensitivity and specificity of the 2 MHz Doppler, 8 patients with a palpable pulse and 8 patients in asystole were studied. In all 16 cases, a technician was able to correctly identify the presence or absence of contractility. To evaluate the frequency of cardiac contractility in cardiac arrest with PEA, we studied 43 patients. Doppler tones were detected in